Sustainable Port Development & Operations

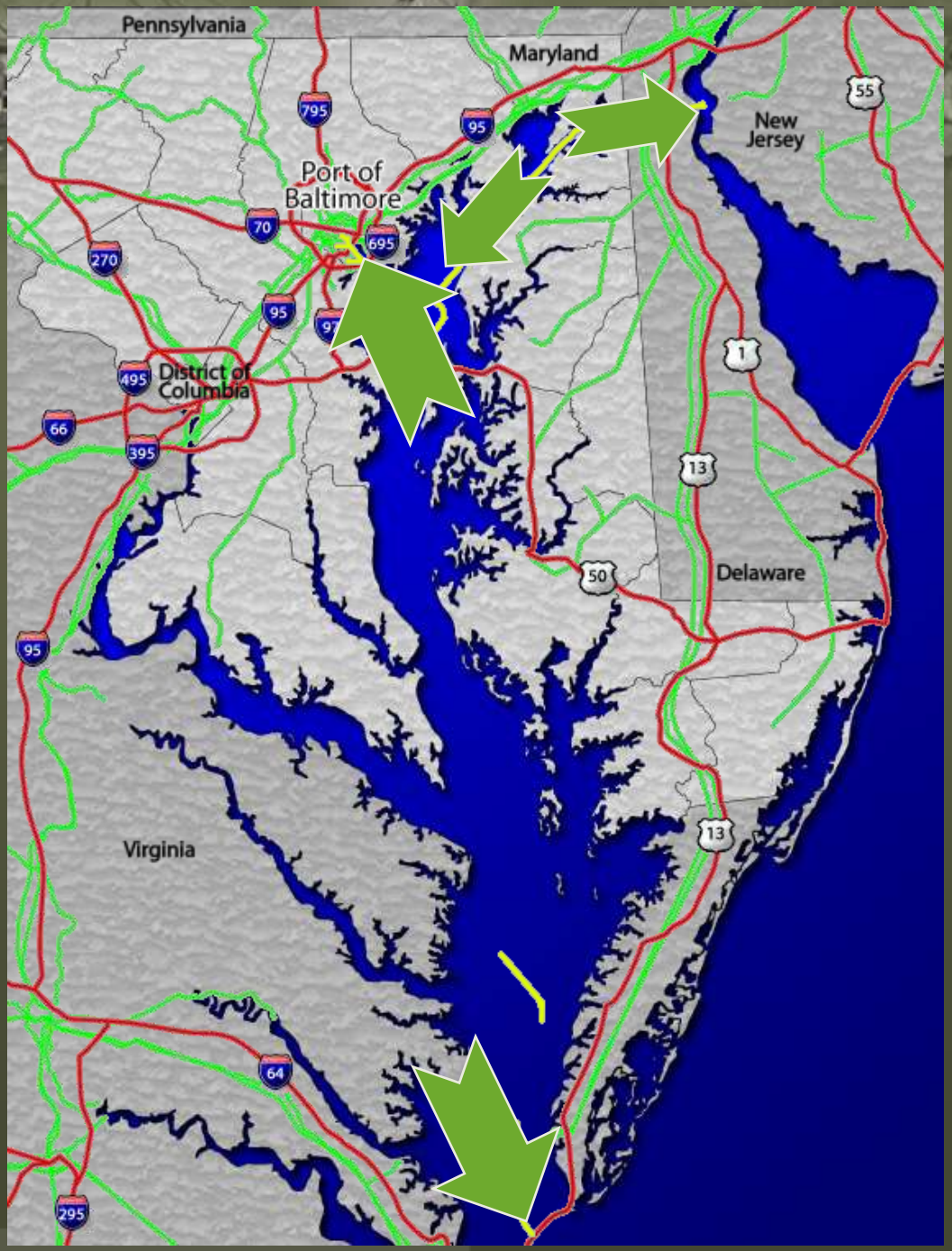
Maryland Port Administration

September 20, 2012

Requirements for Sustainable Port Development

- It's one system - detailed understanding of customer needs from point of origin to destination, which includes
  - Truck, rail, inland waterway, deep-draft navigation, staging, and all of the factors that are involved with maintaining and improving this infrastructure
- Intermediate and long-term planning horizons of 20 years or greater with continual update
- An approach that allows partnering with stakeholders to achieve environmental, social, and economic benefits simultaneously with meeting the needs of the Port
- This presentation focuses on addressing sustainability for the waterside infrastructure, which must function as an integrated part of cargo movement through Ports and Port terminals

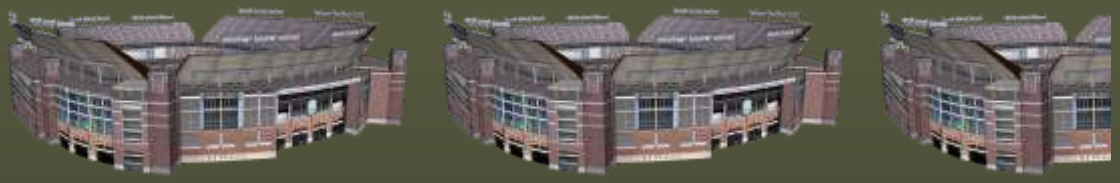
Port of Baltimore Channel System



Connecting International Commerce to Road and Rail Infrastructure

Baltimore's Channel System Is Sustained by Maryland's DMMP, Partnership with USACE

- Channel system of over 300 miles (135 miles dredged) providing both 50' access from the south and 35' access from the north
- Maintenance and improvement requires an average of 5.2 mcy dredging per year



Annual dredging equivalent to 2.5 times volume of M&T Bank stadium

- Maryland's Dredged Material Management Program (DMMP) partners with Corps, stakeholders to produce Economic, Environmental, and Social benefits that provide value necessary to ensure support and fulfillment of the DMMP mission

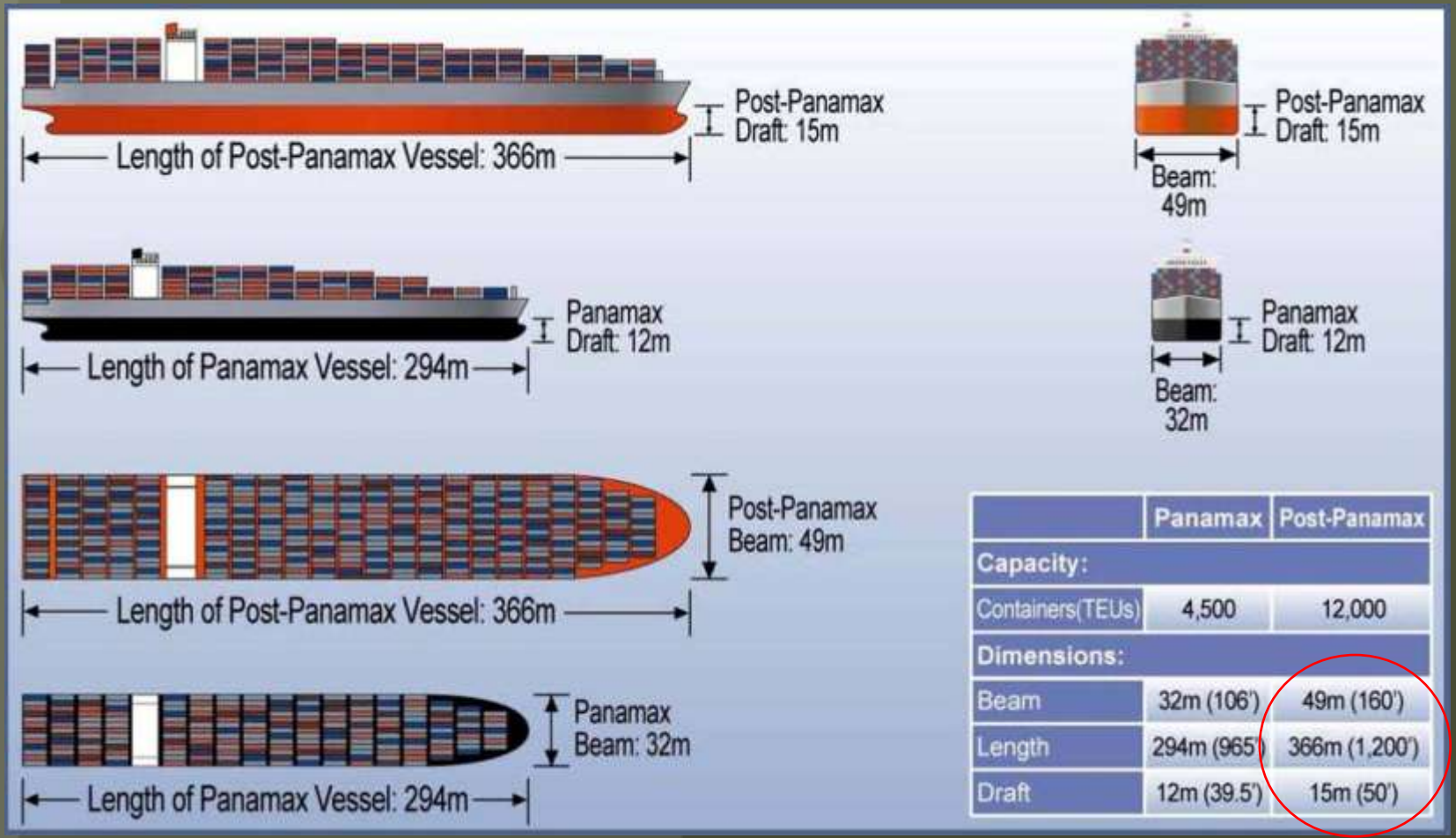
DMMP Activities Ensuring Succes ystem

Navigation System

Deepening & Expansion

Post-Panamax Vessel Size

160 ft Beam (22 containers across), 1,200 ft length, 50 ft draft



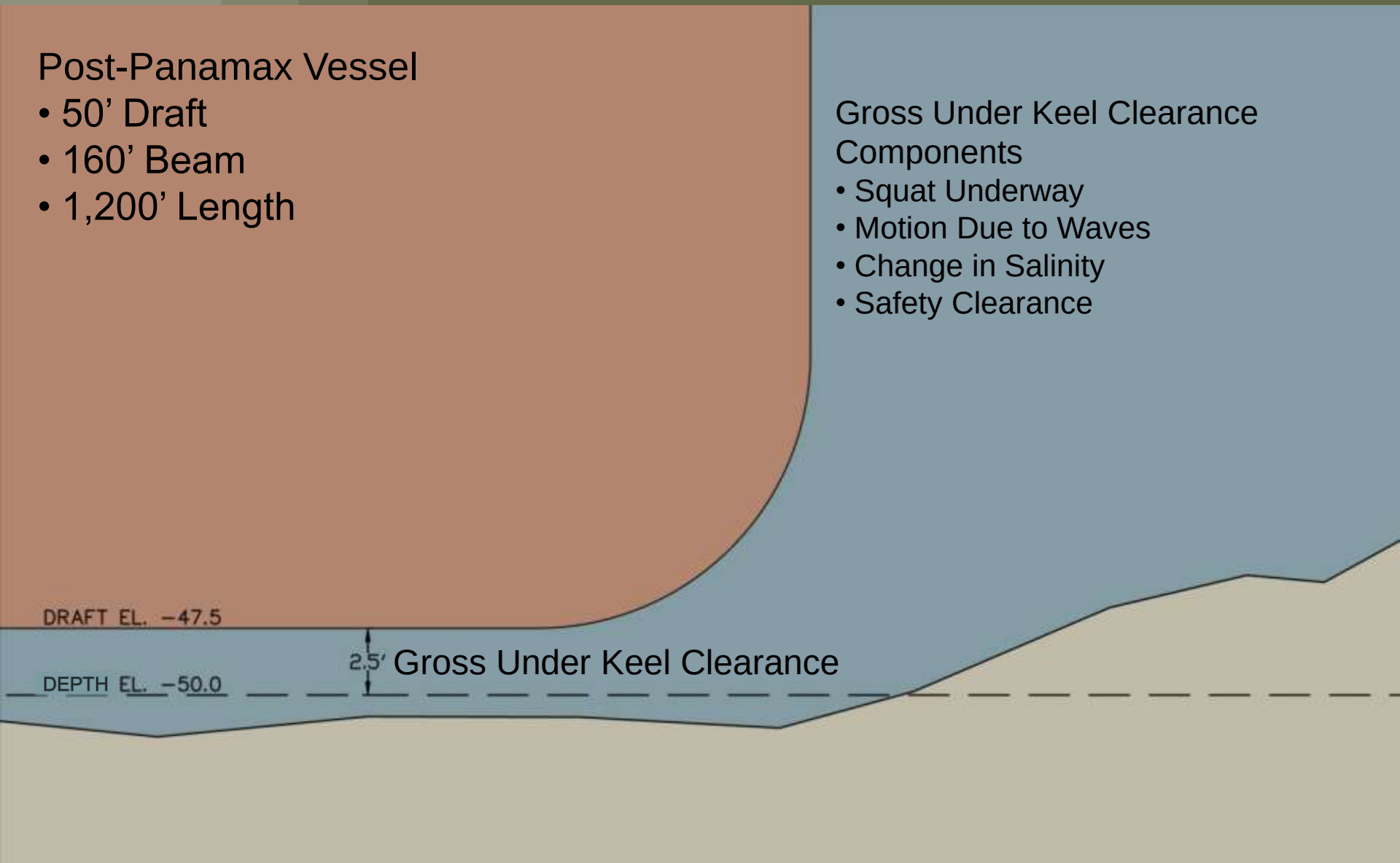
	Panamax	Post-Panamax
Capacity:		
Containers(TEUs)	4,500	12,000
Dimensions:		
Beam	32m (106')	49m (160')
Length	294m (965')	366m (1,200')
Draft	12m (39.5')	15m (50')

Source: Moffatt Nichol and ACP

No Room for Error

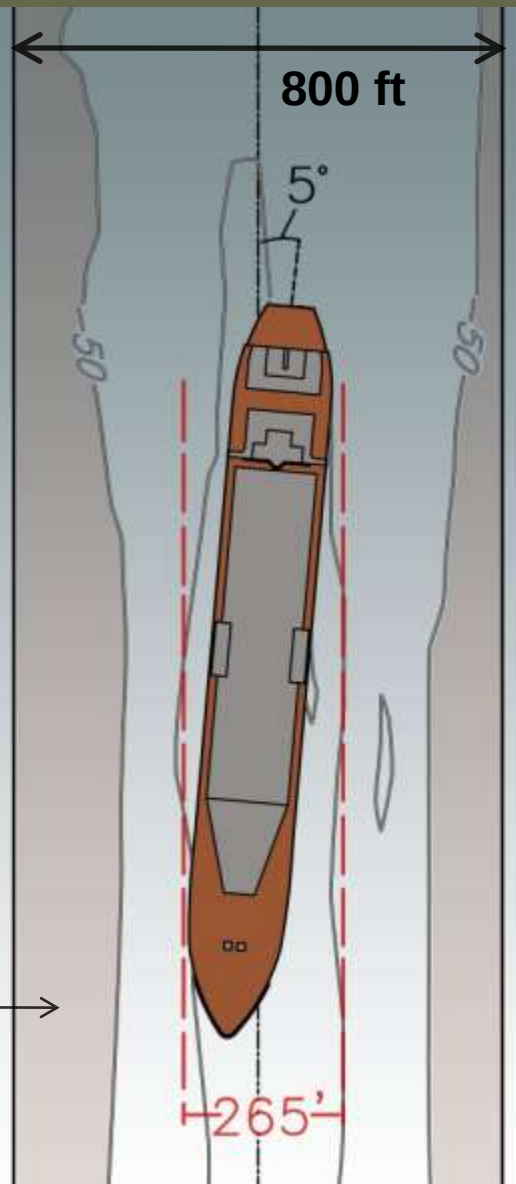
Post-Panamax Vessel
- 50’ Draft
- 160’ Beam
- 1,200’ Length

Gross Under Keel Clearance Components
- Squat Underway
- Motion Due to Waves
- Change in Salinity
- Safety Clearance



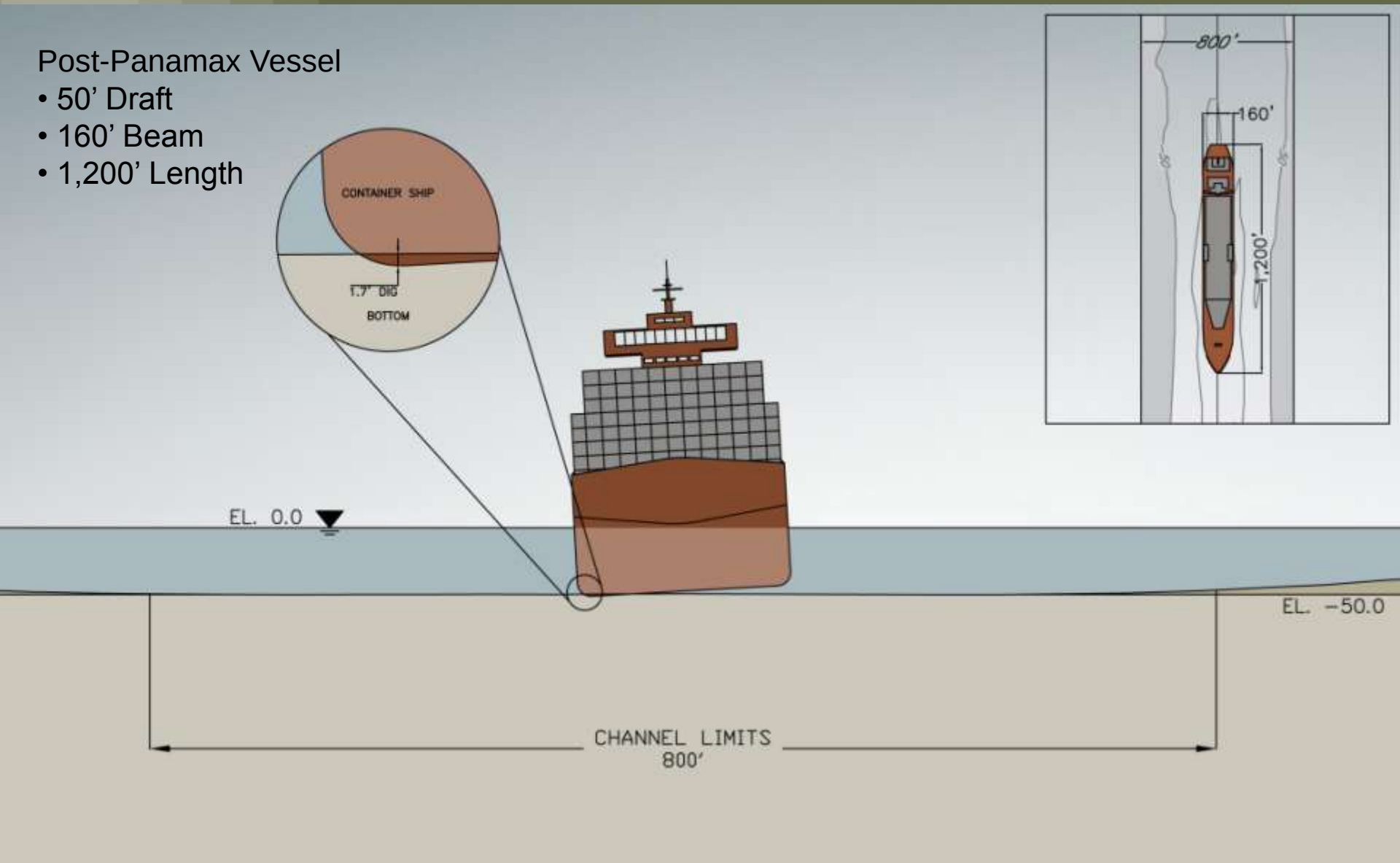
Full Channel Maintenance is Critical (shows 5° crab)

Post-Panamax Vessel
- 50’ Draft
- 160’ Beam
- 1,200’ Length



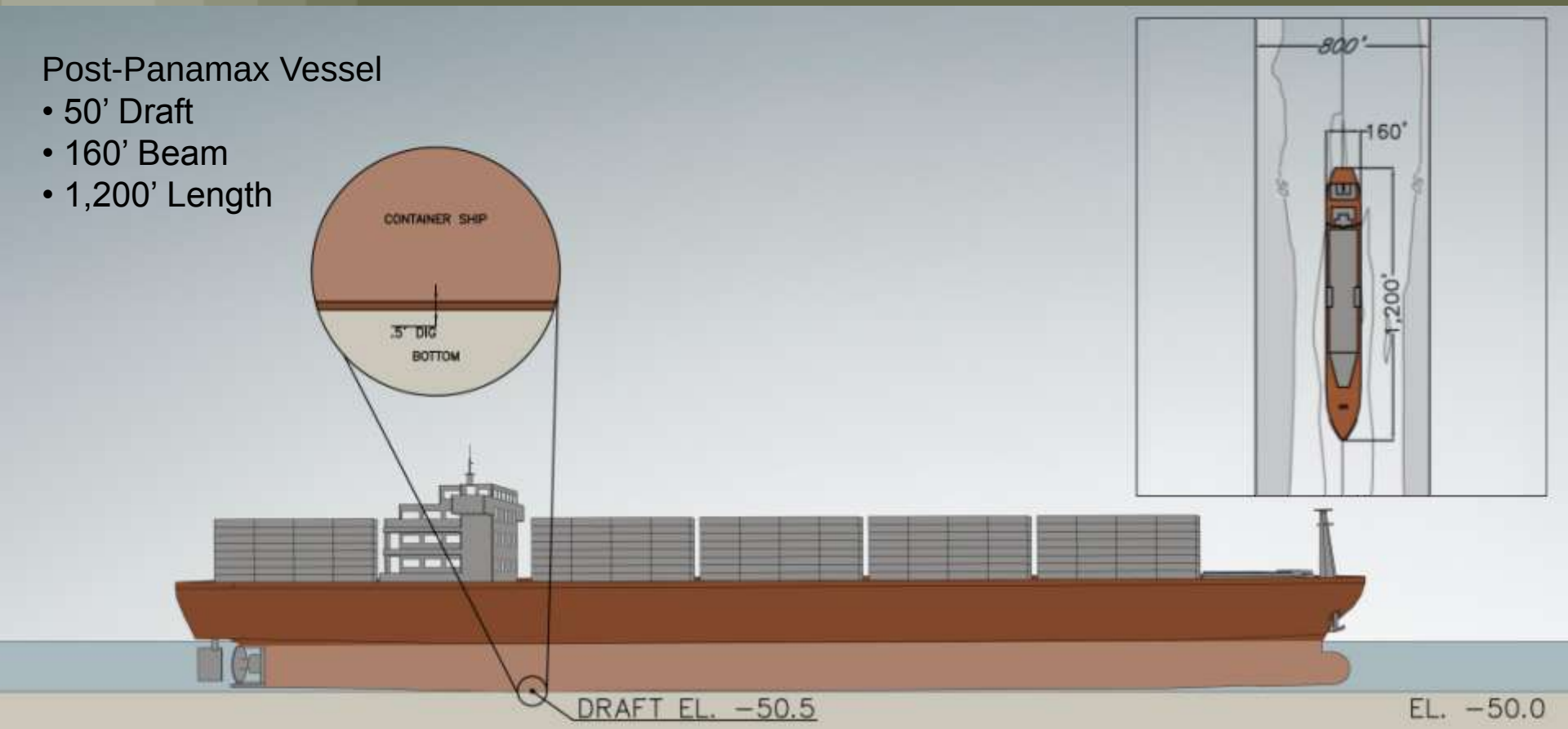
Roll (3º 4.2’ increase in draft)

Post-Panamax Vessel
- 50’ Draft
- 160’ Beam
- 1,200’ Length

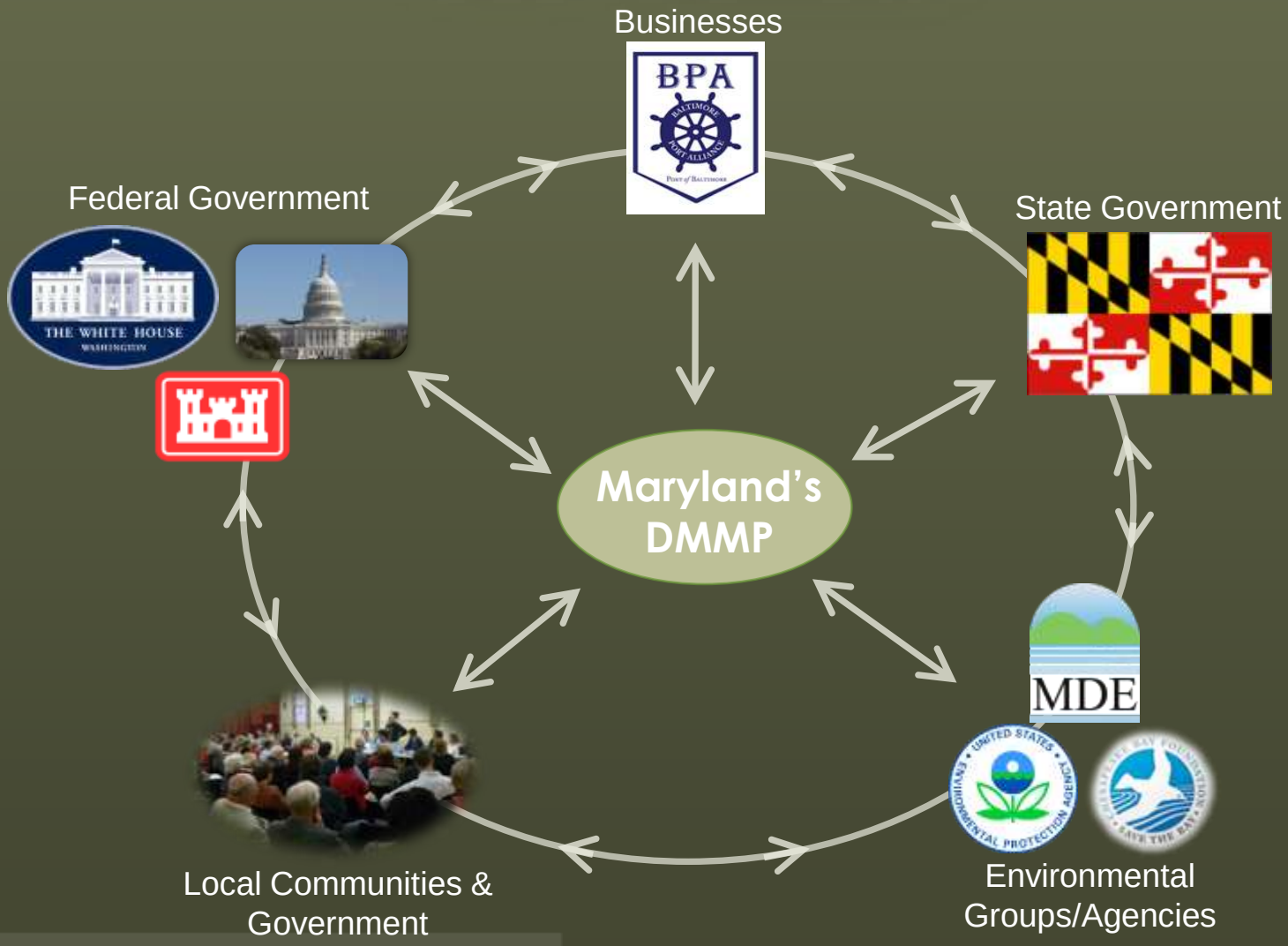


3’ Squat
(10 knots)

Post-Panamax Vessel
- 50’ Draft
- 160’ Beam
- 1,200’ Length



MPA Partners with Stakeholders for Successful DMMP



Businesses Partner with MPA to Ensure Channel Reliability

- Businesses are making substantial investments in the POB to leverage the 35’ and 50’ access channels
  - P3 partnership, auto terminal leases, facility expansions, container shipping agreements
- Businesses are heavily involved in DMMP committees
- Partnership is key to addressing challenging economy, increasing vessel sizes, and need for 24/7 channel availability
  - Dredging costs in the Harbor are increased due to legislative and regulatory limitations on placement options
  - Businesses are relying on larger ships to keep unit costs down
  - Slowing down or waiting at anchor to avoid passing in certain sections of channel, or waiting for adequate tides to pass over shoals drives up the cost for businesses

Environmental Groups/Agencies Are Partners in POB Investment

- Environmental / regulatory agencies and NGO's invest their time, energy, and knowledge through their participation in the DMMP's committee process. Departmental firewalls are used to protect regulatory integrity.
- MPA invests in this partnership to save time and money during permitting while also educating and developing new support for PoB projects
- This partnership is necessary to meet challenges faced due to high expectations for permitting in the Bay region
  - TMDL's
  - Inclusion of in-water placement options
  - Wetland mitigation

Partnerships with Local Communities Facilitate Implementation of POB Projects

- Local communities are partners that invest in the Port through jobs at the PoB and participation in DMMP process
- Success of local communities is also dependent on PoB economic, environmental and social successes
- DMMP provides venue for PoB to partner with local communities to simultaneously maintain channels and improve quality of life
- Challenges: high expectations of the Port that is operating in their back yard

Partnering with the Federal Government

- The federal government is POB's most significant funding partner for channel development and maintenance
- MPA coordinates with Maryland's Congressional delegation to ensure adequate federal funding of maintenance, improvement of POB channels.
- POB partners with 3 Corps Districts to maintain and improve channel infrastructure.
- However, there are significant challenges going forward:
  - Federal funding for dredging continues to decrease as costs are increasing
  - Corps process for implementing a placement site is ~15 yrs assuming project is fully funded and unopposed

Need for New Harbor Placement Options

- 2001 legislative mandate closed HMI December 2009, 14-16 years is average time to develop new, in-water projects (2023 – 2025)
- Needed new capacity for 2010-2011 dredging season to replace HMI
- A change in process was necessary, partnering with stakeholders (Harbor Team) began in 2003, task was to produce a new option within 6 years, by 2010

DMMP Case Study – Masonville Project

- In today's environment, major placement options need to provide benefits beyond capacity in order to meet critical implementation schedules
- Expanded benefits addressing needs of all stakeholders include:
  - Environmental - Brownfield Cleanup, environmental restoration
  - Social - Community organization, educational opportunities
  - Economic - Job creation, future terminal, infrastructure improvements
  - Community enhancements as part of the project process
- Masonville identified by Harbor Team October 2003, went from concept to operations in 6 years (2004-2010), in large part due to community support, allowing MPA to provide for Harbor dredging needs without interruption

MASONVILLE PROJECT

(CONTIGUOUS)

Community Benefits

Communities are gaining access to the water for the first time in 70 years

Environmental and community center (near net zero energy green building)

Community held conservation easement for Cove, ensures access

Masonville Cove with over 50 acres of upland habitat and 100 acres of tidal/non-tidal wetlands

Educational programs for local schools (by Living Classrooms & National Aquarium)

Empowered communities, organizing to ensure local benefits from other projects

Environmental Benefits

Brownfield clean up: removed over 61,000 tons of trash, remediation/removal of 27 derelict vessels

Over 50 acres of contaminated uplands are being capped, contained, and restored

Conservation easement ensures Cove will support of wildlife and community access

Over 130 acres of seriously contaminated river bottom capped and contained

Over 100 acres of tidal and non-tidal wetlands are being restored or created

5 trash interceptors, 2 major stream restoration projects, and 3 fish ladders implemented in Patapsco River watershed

Economic Benefits

Two public hearings with no testimony against the project

Able to maintain underwater infrastructure without interruption

Enhanced community relationships

Operational site in approximately 6 years (HMI closure 12/31/09)

50-ft access channel for Seagirt Berth 4, 45-ft access channel for rest of Seagirt; cofferdam foundation pier 3 at Fairfield

Future marine terminal

Conclusion

- Sustaining long-term Port viability requires detailed understanding of customer needs from Point of Origin to destination, and continual planning that includes stakeholder participation and provides environmental, social, and economic benefits while meeting Port infrastructure needs
- In Maryland, MPA's Dredged Material Management Program (DMMP) is responsible for ensuring waterside infrastructure meets customer needs over 300 miles of channel with 5.2 Mcy of dredging annually
- DMMP's success has relied on stakeholder partnerships that provide Economic, Environmental, and Social value in addressing Port infrastructure needs